

Amendment to the Claims

This listing of claims will replace all prior versions and listings of claims in the above-referenced application.

1. (currently amended) A transgenic *C. elegans* nematode, the cells of which contain a transgene comprising a regulatory element of a gene that encodes a nematode secretory product or a homolog thereof operably linked to a DNA sequence encoding a detectable marker, wherein the detectable marker is expressed in a *C. elegans* pharyngeal gland cell or amphid sheath cell.
2. (previously presented) The transgenic nematode of claim 1, wherein the transgene further comprises at least a portion of the coding sequence of the gene.
3. (currently amended) The transgenic nematode of claim 2, wherein the transgene further comprises at least a portion of an intron from the gene.
4. (previously presented) The transgenic nematode of claim 2, wherein the transgene further comprises at least a portion of the 3' untranslated region from the gene.
5. (previously presented) The transgenic nematode of claim 2, wherein the coding sequence of the gene is in frame with the sequence encoding the detectable marker.
6. (previously presented) The transgenic nematode of claim 1, wherein the transgene is contained in a chromosome.
7. (previously presented) The transgenic nematode of claim 1, wherein the transgene is extrachromosomal.
8. (previously presented) The transgenic nematode of claim 5, wherein the transgene comprises an integrated array comprising a second regulatory element operably linked to a second copy of a DNA sequence encoding the detectable marker.

9. (previously presented) The transgenic nematode of claim 8, wherein the second regulatory element directs expression of the detectable marker in a substantially different population of cells to that in which the first regulatory element directs expression of the detectable marker.

10. (previously presented) The transgenic nematode of claim 1, wherein the nematode secretory product is a protein.

11. (previously presented) The transgenic nematode of claim 1, wherein the detectable marker is selected from the list consisting of: a fluorescent polypeptide, a chemiluminescent polypeptide, an epitope tag, and an enzyme.

12. (currently amended) The transgenic nematode of claim 1, wherein the detectable marker is selected from the list consisting of: green fluorescent protein, luciferase, chloramphenicol acetyl transferase, xanthine-guanine phosphoribosyl transferase, beta-galactosidase, horseradish peroxidase, alkaline phosphatase, a Myc tag, and an HA tag.

13. (currently amended) The transgenic nematode of claim 1, wherein the detectable marker comprises a variant of a marker selected from the list consisting of: green fluorescent protein, luciferase, chloramphenicol acetyl transferase, xanthine-guanine phosphoribosyl transferase, beta-galactosidase, horseradish peroxidase, alkaline phosphatase, a Myc tag, and an HA tag, wherein the variant is detectable using the same detection means by which the marker of which it is a variant is detectable.

14. (canceled)

15. (currently amended) The transgenic nematode of claim 1, ~~wherein the transgenic nematode is *C. elegans* and~~ wherein the regulatory element from a nematode secreted product or homolog thereof comprises a regulatory element from a gene that encodes a *C. elegans* homolog of a parasitic nematode secreted protein.

16. (currently amended) The transgenic nematode of claim 1 or claim 2, ~~wherein the transgenic nematode is *C. elegans* and~~ wherein the regulatory element from a nematode secreted product or homolog thereof comprises a regulatory element from a gene that encodes a *C. elegans* homolog of a parasitic nematode secreted protein, wherein the parasitic nematode secreted protein is found naturally in a nematode that is a member of an order selected from the group consisting of the *Strongylida*, *Rhabditida*, *Ascaridida*, *Spirurida*, *Oxyurida*, *Enoplida*, *Tylenchida*, or *Dorylaimida* nematode orders.

17. (currently amended) The transgenic nematode of claim 1 or claim 2, ~~wherein the transgenic nematode is *C. elegans* and~~ wherein the regulatory element from a nematode secreted product or homolog thereof comprises a regulatory element from a gene that encodes a *C. elegans* homolog of a parasitic nematode secreted protein, wherein the parasitic nematode secreted protein is found naturally in a nematode that is a member of a genus selected from the list consisting of the *Haemonchus*, *Oestertagia*, *Trichostrongylus*, *Cooperia*, *Dictyocaulus*, *Strongylus*, *Oesophagostomum*, *Syngamus*, *Nematodirus*, *Heligmosomoides*, *Nippostrongylus*, *Metastrongylus*, *Angiostrongylus*, *Ancylostoma*, *Necator*, *Uncinaria*, *Bunostomum*, *Strongyloides*, *Steinernema*, *Ascaris*, *Parascaris*, *Toxocara*, *Toxascaris*, *Baylisascaris*, *Anisakis*, *Pseudoterranova*, *Heterakis*, *Wuchereria*, *Brugia*, *Onchocerca*, *Dirofilaria*, *Loa*, *Thelazia*, *Dracunculus*, *Gnathostoma*, *Enterobius*, *Oxyuris*, *Syphacia*, *Trichinella*, *Trichuris*, *Capillaria*, *Globodera*, *Heterodera*, *Meloidogyne*, *Anguina*, *Ditylenchus*, *Hirschmanniella*, *Nacobus*, *Pratylenchus*, *Radopholus*, *Criconema*, *Tylenchulus*, *Paratylenchus*, *Aphelenchus*, *Bursaphelenchus*, *Longidorus*, *Xiphinema*, *Trichodorus*, and *Paratrichodorus* nematode genera.

18. (previously presented) The transgenic nematode of claim 15, wherein the *C. elegans* homolog of a parasitic nematode secreted product is the *C. elegans* ortholog of the parasitic nematode secreted product.

19. (previously presented) The transgenic nematode of claim 1, wherein the nematode secreted product comprises a molecule that is present in a *C. elegans* external secretion, wherein the *C. elegans* is a wild type or transgenic *C. elegans*.

20. (previously presented) The transgenic nematode of claim 1, wherein the nematode secreted product comprises an expression product of a gene that is expressed in a *C. elegans* secretory cell, tissue, or organ, wherein the gene comprises a nucleotide sequence that encodes a signal peptide.

21. (previously presented) The transgenic nematode of claim 1, wherein the nematode secretory product comprises a *C. elegans* homolog of a parasitic nematode secretory product, wherein the parasitic nematode secretory product is present in external secretions of the parasitic nematode.

22. (previously presented) The transgenic nematode of claim 1, wherein the nematode secretory product comprises a *C. elegans* homolog of a putative parasitic nematode secretory product, wherein the putative parasitic nematode protein contains a signal sequence.

23. (previously presented) The transgenic nematode claim 1, wherein the nematode secretory product comprises a *C. elegans* homolog of a putative parasitic nematode secretory product, wherein the putative parasitic nematode secretory product is present in a specialized secretory cell.

24. (previously presented) The transgenic nematode of claim 1, wherein the regulatory element is a *C. elegans* regulatory element.

25. (previously presented) The transgenic nematode of claim 1, wherein the regulatory element is a 5' regulatory region comprising between 1 nucleotide and 10 kB of sequence extending in a 5' direction from the start codon of the gene.

26. (previously presented) The transgenic nematode of claim 1, wherein the detectable marker is expressed in a dorsal pharyngeal gland.

27. (previously presented) The transgenic nematode of claim 1, wherein the gene is expressed in a dorsal pharyngeal gland.

28. (previously presented) The transgenic nematode of claim 1, wherein the detectable marker is expressed in the subventral pharyngeal gland.

29. (previously presented) The transgenic nematode of claim 1, wherein the gene is expressed in the subventral pharyngeal gland.

30. (previously presented) The transgenic nematode of claim 1, wherein the detectable marker is expressed in an amphid sheath cell.

31. (previously presented) The transgenic nematode of claim 1, wherein the gene is expressed in an amphid sheath cell.

32. (previously presented) The transgenic nematode of claim 1, wherein the gene encodes a member of the venom allergen protein family.

33. (previously presented) The transgenic nematode of claim 1, wherein the gene is *C. elegans vap-1*.

34. (previously presented) The transgenic nematode of claim 1, wherein the gene is *C. elegans vap-2*.

35. (previously presented) The transgenic nematode of claim 1, wherein the gene is a member of the *C. elegans vap* family.

36-45. (canceled)

46. (currently amended) A method of generating a nematode comprising steps of:

(a) selecting a parasitic nematode secretory protein;

(b) identifying a *C. elegans* homolog of the protein selected in step (a);

(c) identifying a nucleic acid sequence comprising a regulatory region of a *C.*

elegans gene encoding the *C. elegans* homolog identified in step (b); and

(d) generating a transgenic *C. elegans* nematode, wherein cells of the transgenic nematode comprise a nucleic acid sequence including the identified regulatory region operably linked to a nucleic acid sequence encoding a detectable marker, wherein the detectable marker is expressed in a pharyngeal gland cell or amphid sheath cell.

47. (previously presented) The method of claim 46, wherein the parasitic nematode is a *Tylenchid* nematode.

48. (previously presented) The method of claim 46, wherein the regulatory region comprises a promoter of the *C. elegans* homolog identified in step (b).

49. (previously presented) The method of claim 46, wherein the nucleic acid sequence of step (d) includes at least a portion of the coding sequence of a gene encoding the *C. elegans* homolog of part (c).

50. (previously presented) The method of claim 49, wherein the nucleic acid sequence of step (d) includes a signal sequence.

51. (previously presented) The method of claim 49, wherein the nucleic acid sequence of step (d) includes at least a portion of an intron from a gene encoding the *C. elegans* homolog of part (c).

52. (previously presented) The method of claim 49, wherein the nucleic acid sequence of step (d) includes at least a portion of the 3' untranslated region from a gene encoding the *C. elegans* homolog of part (c).

53. (previously presented) The method of claim 46, wherein the regulatory region is sufficient to direct expression of the nucleic acid of step (d).

54-105. (canceled)

106. (new) A method of expressing a first polynucleotide in a *C. elegans* nematode comprising the step of:

generating a transgenic *C. elegans* nematode, cells of which comprise a transgene comprising a *vap-1* regulatory region operably linked to the first polynucleotide; and
maintaining the *C. elegans* nematode so that expression of the first polynucleotide occurs.

107. (new) The method of claim 106, wherein the polynucleotide encodes a polypeptide.

108. (new) The method of claim 106, wherein the transgene comprises between 1 nucleotide and 10kB of sequence extending in a 5' direction from the start codon of the *C. elegans vap-1* gene.

109. (new) The method of claim 106, wherein the generating step comprises injecting a polynucleotide into a *C. elegans* nematode, wherein the polynucleotide comprises a *vap-1* regulatory region operably linked to the polynucleotide.

110. (new) A method of expressing a first polynucleotide in a *C. elegans* nematode comprising the step of:

generating a transgenic *C. elegans* nematode, cells of which comprise a *vap-2* regulatory region operably linked to the first polynucleotide; and
maintaining the nematode so that expression of the first polynucleotide occurs.

111. (new) The method of claim 110 wherein the polynucleotide encodes a polypeptide.

112. (new) The method of claim 110, wherein the transgene comprises between 1 nucleotide and 10kB of sequence extending in a 5' direction from the start codon of the *C. elegans vap-2* gene.

113. (new) The method of claim 111, wherein the generating step comprises injecting a polynucleotide into a *C. elegans* nematode, wherein the polynucleotide comprises a *vap-2* regulatory region operably linked to the polynucleotide .

114. (new) The transgenic nematode of claim 12, wherein the detectable marker is alkaline phosphatase.

115. (new) A method of generating a transgenic *C. elegans* nematode comprising steps of:

- (a) selecting a parasitic nematode secretory protein that is expressed in a pharyngeal gland cell, an amphidial gland cell, or both, of a parasitic nematode;
- (b) identifying a *C. elegans* homolog of the protein selected in step (a); and
- (c) generating a transgenic *C. elegans* nematode, wherein cells of the transgenic nematode comprise a first DNA element encoding a detectable marker operably linked to a second DNA element whose sequence comprises a sequence located up to 10 kb immediately upstream of the start codon of the gene that encodes the *C. elegans* homolog.

116. (new) A transgenic *C. elegans* nematode, cells of which comprise a first DNA element encoding a detectable marker operably linked to a second DNA element whose sequence comprises a sequence located up to 10 kb immediately upstream of the start codon of a gene that encodes a *C. elegans* homolog of a parasitic nematode secretory protein, which parasitic nematode secretory protein is expressed in a pharyngeal gland cell, an amphidial gland cell, or both, of a parasitic nematode.

117. (new) The transgenic nematode of claim 116, wherein the sequence of the second DNA element comprises a sequence located up to 8 kB immediately upstream of the start codon of the gene that encodes the *C. elegans* homolog.

118. (new) The transgenic nematode of claim 116, wherein the sequence of the second DNA element comprises a sequence located up to 6 kB immediately upstream of the start codon of the gene that encodes the *C. elegans* homolog.

119. (new) The transgenic nematode of claim 116, wherein the *C. elegans* homolog is a VAP family member.

120. (new) The transgenic nematode of claim 119, wherein the VAP family member is VAP-1.

121. (new) The transgenic nematode of claim 119, wherein the VAP family member is VAP-2.

122. (new) The transgenic nematode of claim 116, wherein the transgene is integrated into the genome of the transgenic *C. elegans* nematode.

123. (new) The transgenic nematode of claim 116, wherein the transgene further comprises at least a portion of the coding sequence of the gene that encodes the *C. elegans* secretory protein, at least a portion of an intron of the gene that encodes the *C. elegans* secretory protein, at least a portion of a 3' untranslated region of the gene that encodes the *C. elegans* secretory protein, or a combination of any of the foregoing.

124. (new) A method of generating a transgenic *C. elegans* nematode comprising steps of:

(a) selecting a *C. elegans* secretory protein that is expressed in a pharyngeal gland cell, an amphid sheath cell, or both; and

(b) generating a transgenic *C. elegans* nematode, wherein cells of the transgenic nematode comprise a transgene comprising a first DNA element that encodes a detectable marker operably linked to a second DNA element whose sequence comprises a sequence located up to 10 kb immediately upstream of the start codon of the gene that encodes the *C. elegans* secretory protein.

125. (new) A transgenic nematode, cells of which comprise a transgene comprising a first DNA element encoding a detectable marker operably linked to a second DNA element whose sequence comprises a sequence located up to 10 kb immediately upstream of the start codon of a gene that encodes a *C. elegans* secretory protein.

126. (new) The transgenic nematode of claim 125, wherein the sequence of the second DNA element comprises a sequence located up to 8 kb immediately upstream of the start codon of the gene that encodes the *C. elegans* secretory protein.

127. (new) The transgenic nematode of claim 125, wherein the sequence of the second DNA element comprises a sequence located up to 6 kB immediately upstream of the start codon of the gene that encodes the *C. elegans* secretory protein.

128. (new) The transgenic nematode of claim 125, wherein the transgene further comprises at least a portion of the coding sequence of the gene that encodes the *C. elegans* secretory protein, at least a portion of an intron of the gene that encodes a *C. elegans* secretory protein, at least a portion of the 3' untranslated region of the gene that encodes the *C. elegans* secretory protein, or any combination of the foregoing.

129. (new) The transgenic nematode of claim 125, wherein the *C. elegans* secretory protein is a VAP family member.

130. (new) The transgenic nematode of claim 129, wherein the *C. elegans* secretory protein is VAP-1.

131. (new) The method of claim 106, wherein the polynucleotide encodes a detectable marker.

132. (new) The method of claim 131, wherein the detectable marker is selected from the list consisting of: a fluorescent polypeptide, a chemiluminescent polypeptide, an epitope tag, and an enzyme.

133. (new) The method of claim 131, wherein the detectable marker is selected from the list consisting of: green fluorescent protein, luciferase, chloramphenicol acetyl transferase, xanthine-guanine phosphoribosyl transferase, beta-galactosidase, horseradish peroxidase, alkaline phosphatase, a Myc tag, and an HA tag.

134. (new) The method of claim 131, wherein the detectable marker comprises a variant of a marker selected from the list consisting of: green fluorescent protein, luciferase, chloramphenicol acetyl transferase, xanthine-guanine phosphoribosyl transferase, beta-galactosidase, horseradish peroxidase, alkaline phosphatase, horseradish peroxidase, alkaline phosphatase, a Myc tag, and

an HA tag, wherein the variant is detectable using the same detection means by which the marker of which it is a variant is detectable.

135. (new) The method of claim 131, wherein the detectable marker is alkaline phosphatase.

136. (new) The method of claim 106, wherein the transgene further comprises at least a portion of the coding sequence of the *vap-1* gene, at least a portion of an intron of the *vap-1* gene, at least a portion of the 3' untranslated region of the *vap-1* gene, or any combination of the foregoing.

137. (new) The method of claim 110, wherein the polynucleotide encodes a detectable marker.

138. (new) The method of claim 137, wherein the detectable marker is selected from the list consisting of: a fluorescent polypeptide, a chemiluminescent polypeptide, an epitope tag, and an enzyme.

139. (new) The method of claim 137, wherein the detectable marker is selected from the list consisting of: green fluorescent protein, luciferase, chloramphenicol acetyl transferase, xanthine-guanine phosphoribosyl transferase, beta-galactosidase, horseradish peroxidase, alkaline phosphatase, a Myc tag, and an HA tag.

140. (new) The method of claim 137, wherein the detectable marker comprises a variant of a marker selected from the list consisting of: green fluorescent protein, luciferase, chloramphenicol acetyl transferase, xanthine-guanine phosphoribosyl transferase, beta-galactosidase, horseradish peroxidase, alkaline phosphatase, horseradish peroxidase, alkaline phosphatase, a Myc tag, and an HA tag, wherein the variant is detectable using the same detection means by which the marker of which it is a variant is detectable.

141. (new) The method of claim 137, wherein the detectable marker is alkaline phosphatase.

142. (new) The method of claim 110, wherein the transgene further comprises at least a portion of the coding sequence of the *vap-2* gene, at least a portion of an intron of the *vap-2* gene, at least a portion of the 3' untranslated region of the *vap-2* gene, or any combination of the foregoing.